

Chapter 9 Transformations

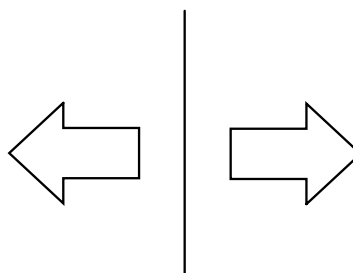
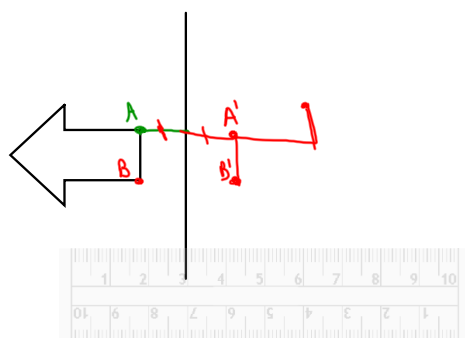
9-1 Reflections

Transformation --maps an initial figure, preimage, to a final figure, image

Isometry --transformation that does not change the size or shape of the preimage

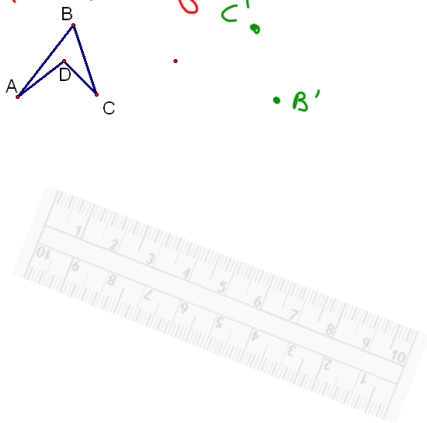
Reflection --type of transformation representing a flip of a figure

A reflection can be made in a point, line, or a plane

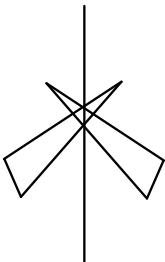
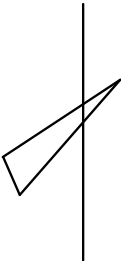
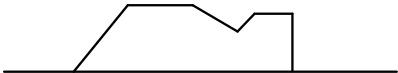




Point Reflection



Practice



gsp ex

Reflections on the Coordinate Plane

x-axis
(a, b)

$\longleftrightarrow a, -b$

y-axis
(a, b)

$\longleftrightarrow -a, b$

origin
(a, b)

$\longleftrightarrow -a, -b$

line $y = x$
(a, b)

$\longleftrightarrow b, a$

Symmetry--an object has symmetry when it reflects onto itself

Line symmetry and point symmetry

LINEs AND POINTs OF SYMMETRY Some figures can be folded so that the two halves match exactly. The fold is a line of reflection called a **line of symmetry**. For some figures, a point can be found that is a common point of reflection for all points on a figure. This common point of reflection is called a **point of symmetry**.

Lines of Symmetry

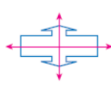
None

F

One



Two



More than Two



Points of Symmetry

F

No points of symmetry.



Each point on the figure must have an image on the figure for a point of symmetry to exist.



A point of symmetry is the midpoint of all segments between the preimage and the image.

A B C D E F G

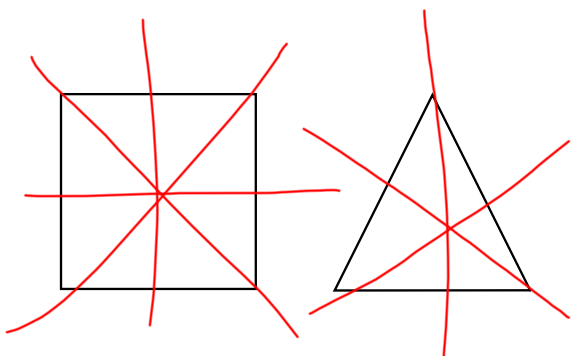
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P Q R S T U V

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Words



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18-25, 27, 30, 31, 32

Attachments

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